

AVIATION

The Oldest American Aeronautical Magazine

JULY 4, 1927

Issued Weekly

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Fokker Universal of the Pacific Air Transport flying past Mount Hood

VOLUME
XXIII

SPECIAL FEATURES

NUMBER
1

MEETING SERVICE NEEDS
RECONNOITERING OVER NICARAGUA
RADIO BEACON TO GUIDE HAWAIIAN FLIERS

AVIATION PUBLISHING CORPORATION

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under Act of March 3, 1879

*An eagle in performance or in appearance?*

S O R R Y

but we cannot enter the tour as we had planned, and properly take care of our distributors -

SPECIAL FEATURES are still open for distribution at mail stations. Because our leadership distinguished appearance, super performance and our price of \$2450.00 have made the American Eagle popular.

*The Standard Oil Company's plane**The Standard Oil Company's plane*

AMERICAN EAGLE AIRCRAFT COMPANY
2328 HARRISON STREET, KANSAS CITY, MISSOURI

THE Standard Oil Company (Indiana), well known to aviators of the Middle West as the manufacturer of Stanolind Aviation Gasoline and Aero Oils, has now given a further impetus to commercial aviation by the purchase of a passenger airplane for the use of its directors and technical staff.

This plane, which was built by the Strat Metal Airplane Division of the Ford Motor Company, is the last word in passenger airplane construction, and is as safe as any automobile or railroad train. It is motorized with three Wright model J 4-5 radial type air-cooled engines, developing a total of 600 horsepower. It has a cruising speed of 100 miles per hour, and a cruising radius of 500 miles. It carries eight passengers in addition to the two pilots which constitute its crew.

The plane was purchased, not as a plaything or an advertisement, but for the purpose of increasing the efficiency of the organization and saving the time of the officials. The Company operates over a territory covering half a continent. It is frequently necessary for the direction and technical staff to make journeys to branch offices or refineries in the outlying parts of this territory. By traveling in this plane instead of by rail, they can save a full day's time on some of the longer trips.

It is expected that the Company's purchase of the plane will stimulate public interest in commercial aviation and increase confidence in the safety of air conveyances.

*Stanolind Aviation Gasoline and Aero Oils may be purchased
at practically all landing fields in the Middle West*

STANDARD OIL COMPANY
(INDIANA)
General Offices: 910 S. Michigan Avenue CHICAGO, ILLINOIS



THE growth of the Boeing Airplane Company is one of those astounding developments with which America is startling the world. A factory personnel, chosen for achievement and ability ---- factory buildings originally designed for future expansion, rather than for past needs ---- competent aeronautical engineers creating new designs ---- these, and many other factors have surely played their part in the earned reputation behind every Boeing plane.

Boeing Airplane Co.
Seattle, Washington

Mail by Air and Speed it There

A Correction

Through a regrettable error in the Boeing Airplane advertisement in the June 6th issue of this magazine, the following statement appeared:

"That this keen vision is appreciated is borne out by the fact that in the first four months of 1927 the Boeing Airplane Company has produced a thousand various type planes"

The Advertisement Should Have Read:

"That this keen vision is appreciated is borne out by the fact that since our business was established in 1916, we have produced a thousand various type planes."

Botsford-Constantine Co.

Advertising

Seattle

Portland

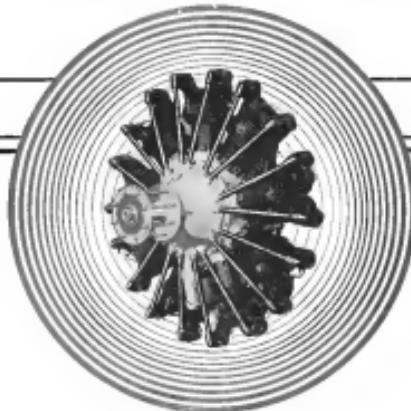
San Francisco

MAIL BY AIR AND SPEED IT THERE

Wasp & Hornet
LEADERSHIP

The Wasp
435 H.P.
at 1900 R.P.M.
Weight 610 lbs.

The Hornet
525 H.P.
at 1900 R.P.M.
Weight 710 lbs.



These unique features have been developed
and proved by Pratt & Whitney engines

1. One piece Master Connecting Rod and Built-up Crank-shaft.
2. Devised and Forged Aluminum Main Crankcase
3. Grouping of all accessories at the rear of the engine
4. Complete enclosure of all working parts



The fundamental design improvements of the Wasp and the Hornet have considerably influenced all new air-cooled radial engines, and entirely new fields have been created for this type of aircraft power plant.

THE
PRATT & WHITNEY AIRCRAFT CO.
HARTFORD CONNECTICUT

DEPENDABLE ENGINES

July 4, 1927



CLIMB

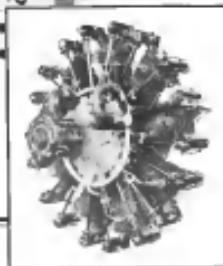
THE "CORSAIR" official climb in 10 minutes is phenomenal for two-place planes, equalling or exceeding that of Service Single-Seater Pursuit Types, altho such planes are much lighter and carry a much smaller useful load. At 18,000 feet the rate of climb of the "Corsair" is unapproached, and at such altitudes it will outmaneuver and outfly Service Single-Place Pursuit Planes.

CHANCE VOUGHT CORPORATION
LONG ISLAND CITY, NEW YORK



**WORLD'S TRANS-ATLANTIC RECORD —
WORLD'S ENDURANCE RECORD
both held by Wright-Bellanca plane
equipped with**

BOHN RING TRUE BEARINGS



Once again the world is thrilled with a
marvelous Trans-Atlantic flight — the
time by Clarence Chamberlin and Charles
A. Levine.

And again Bohn Ring True Bearings have
played their part in achieving the final
splendid result.

For the Speed of St. Louis with which the
indomitable Lindbergh made his flight
was equaled with Bohn Ring True
Connecting Rod Bearings.

And now the Wright-Bellanca plane,
the holder of the world's record of 51 hours
for sustained flight, and the one with
which Chamberlin and Levine made their
perilous crossing, in which a new world's
nonstop long distance record was established,
is equipped with Bohn Ring True
Bearings.

We are proud indeed that Bohn Ring True
Bearings should have had a part in these
so stupendous and thrilling achievements.

BOHN ALUMINUM & BRASS CORPORATION
DETROIT, MICHIGAN
All makes of Extreme Cylinder and Valve
Boiler Plates

BOHNLITE



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Austin Engineers can furnish valuable information on hangars, airports, shops, manufacturing plants, etc., to any corporation or municipality interested.

Under the Austin Method of Undivided Responsibility, design, construction, and equipment are all handled by this one organization under one contract which guarantees total cost for the complete project in advance, completion date with bonus and penalty clause, if preferred, and quality of materials and workmanship.

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Under either plan the speed and thoroughness of Austin's work is an important factor to the owner.

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THE AUSTIN COMPANY, Engineers and Builders, Cleveland
Rock Creek, Cleveland, Ohio. Post Office Box 1000. 801 Euclid Avenue. Tel. Austin 1-3661
The Austin Company of Canada, The Austin Company of California, Los Angeles and San Francisco

AUSTIN

Complete Building Service

Memo to THE AUSTIN COMPANY, Cleveland	As an enclosed for you to give to your contractor
Please kindly let me know if you need a general copy of "The Austin Book of Standards" (Individual Copy Price)	



Fairchild have created a new cabin monoplane. Quite the finest machine in its class. The pilot's seat has been placed into the cabin. Powered with the Wright 200 H. P. "Whirlwind", it is the most serviceable plane for the transport of passengers and express goods. Extreme stability and spontaneous response to the controls make the Fairchild Monoplane easy to handle and a pleasure to fly. The cabin provides seating accommodation for four passengers and the pilot. The total laden weight is 2225 lbs., of which 750 lbs. is available for passengers and freight. Maximum speed 124 miles per hour approximately. Wing span 46 ft., or 12 ft. when folded. Write us about your aerial problem.

Fairchild facilities are
at your disposal.

Fairchild Airplane Mfg. Corporation
Farmingdale, Long Island

DIVISION OF FAIRCHILD AVIATION CORPORATION



VOL. XXIII

JULY 4, 1927

No. 1

Sightseeing vs. Time Saving

WHENEVER THE possibilities of passenger air transportation are discussed, the chief advantages that is mentioned is the saving of time. Important as this factor is, there is another advantage for passengers that should not be overlooked. Sightseeing, to use the term generally employed to cover a more leisurely method of travel, has apparently been neglected in the plan for inducing passengers to use aircraft. When compared to the time actually saved by travel by air, the sightseeing tour should not be passed over as an unimportant factor.

In the European air mail practically all routes are laid out on the basis of saving time, the shortest distance between two points selected as the route. This, however, often happens, the air mail routes which the passenger wishes to see. Take for example, the air route from Cologne to Frankfurt. This follows the direct line and the air mail covers all the romantic and picturesque scenery of the Rhine. If a half hour's flying were added to this flight it would become famous as one of the great scenic air trips of the world. Another route that overlooks this point is the Paris-Basel flight. No attempt is made by flight distance to give passengers a view of Rennes, Chateaux, Thury, St. Michel and other places of the greatest historical importance. It is not that the air mail is held back as no time were added to every air mail in Europe, and the sightseeing feature emphasized, aerial travel would be willing to pay the extra cost and thousands would be attracted who now visit the off-the-beaten paths by motor car.

While the United States does not afford so many objectives of historic or scenic interest, in placing future air lines, the advantages of the feature should be given serious consideration. Take the New York to Chicago route as an instance. If air passengers who were not pressed for time could be given the opportunity of flying up the beautiful Hudson River for the Catskills and down the Ohio River, many might take the trip who otherwise would go by boat and train. From New York to Washington there are many spots associated with the Revolution that would give air lines a great opportunity to sell the scenic advantages of their service.

The saving of time, under present conditions, and as the scheme of night passenger travel, is one of the questionable advantages of air travel, if it is granted that time between stops in the morning and late in the afternoon is the only period worth using. With the sightseeing development many air lines could be opened which could have short flights between cities and towns, and would bring the thought of saving time. The sightseeing industry in the country is growing every year and aircraft should receive a part of this traffic along with the development of the more prosaic air transportation.

Landing Fields

A HEALTHY stage of the times for aviation is the interest that the body and personnel possess in taking in the subject of landing fields. The tremendous work of the Aeronautics Branch of the Department of Commerce and the amount of public interest in aviation that followed the recent trans-Atlantic flights with the American planes and American engines have greatly influenced the direction of thought to the important matter.

Such being the case it would seem highly advisable for all those interested in the aeronautical welfare of this country to redouble their efforts towards that end while public interest is at a high level. It might safely be said that the one great need of aviation within our gates is a greater number of landing fields throughout the country, and the sooner they are established the better it will be for commercial aviation. But at the same time the task must not be done haphazardly.

There can be no extensive development of continental flying without proper ground facilities any more than there could be railway transportation without terminals, or water transportation without docks and piers. Some new forms of transport have their special requirements, and it happens that the outfitting required for air terminals is small as compared with the cost of proper reduced or harbor facilities.

A heavy tax on the requirements of air terminals is serious. In smaller communities where large tracts of land, at reasonable cost, are obtainable close to the heart of the city, the problem is not a difficult one. It is the finding of suitable surface close to the business center of most of our large cities, and at a cost not prohibitive, that creates a real problem. Fortunately, practically every large city has some water front, either river or sea, and, fortunately, also, the utilization of these natural landing facilities.

Some experts who have given thought to the perplexing subject of practical, sizeable landing fields for larger cities are inclined to the view that the airfields have pointed a way to the solution of the problem, by the creation of great terminal airfield stations distant from cities, and then shunting motor power for the transfer of the passengers to the terminals in the center of the cities. With the use of seaplanes operating at points between large air terminals located at desirable points some distance out, and water terminals in the center of the popular districts, passengers and freight could be moved with a very low cost, and the long hard trip in and from distantly located aeronautic fields could be eliminated.

There is a plan to which students of air terminals are beginning to give thought, and it may prove the solution of the problem in each of our larger cities as present specially difficult conditions.

Reconnoitering Over Nicaragua

*As Told to Andrew R. Boone in an Interview with Capt. H. Dewey Campbell,
U. S. Marine Corps and Winner of the Schaff Trophy for Safe Flying*

IF YOU WOULD take a piece of paper, crumple it in your hand, and then drop it on the table, you would have just "pinned" a pilot of Nicaragua. It's a simple trap, and it's been used since my first impression of the little country was that of a topography liberally sprinkled with "holes" and volcanoes. Certainly the latter characterize her soil, for it is the humpiest I have ever experienced.

When I went to Nicaragua several months ago with a squadron of marine fliers, we found the country very mountainous. The volcanic peaks stand like islands in the land, and both gold and silver are said to be recoverable white sand. During the rainy season the ground becomes soft, and for that reason the landing fields become dangerous. Take it any way you like, Nicaragua offers no pleasure to an otherwise "safe" flier.

Scout Rebel Troops

Yet, caught by the spirit of adventure, we go there and valiantly risk their back is the air. In this I do not refer to Marine Corps fliers, but to thoseсты硬y specimens—Major Lee Mason and Major Bill Brooks—in the employ of the Federal government (the conservatives). These former American Army pilots, with a host of their drawbacks, make determinedly unpredictable fliers. They talk and act like rated experts, seem to understand language, experience and strategy, and are the definitive against whom they have planned every kind.

Their planes are in poor condition, the wings are warped and their instant debut relatively hideous. Yet their existence of having been shot up, one surviving with a "seamless" escape in the form of several bullet holes. With this transversely, Mason and Brooks represent the federal army to the sky.

Out of them, mounting understandings in the bombing of rebel troops.

The bombs they use are crude, consisting of a cylinder of steel containing three sticks, of dynamite, a spring and a steel ball.

On striking the ground, the ball is thrown against the dynamite and the bomb (thermodynamically explosive) goes off. This is the general idea.

Now, however, we try the other bombs which are moreoder to us. These are generally available in the field.

He generally manufacture them in aviation factories and spend results at all times around the field of Managua. Many times here I have been maneuvering with such fliers from another shuttle and maneuvering on the nose of three very propulsive, while we go off to the neighborhood's created. Yet he has not yet been injured from this cause.

Plane Once Belonged to G-2 Corpsmen

One day, well into a flight of 20 hours, to scanning and the hunting of rebels, we were flying over the mountains of Nicaragua when I saw the expression. He intended to me that our next bombs. He dived one and without permission came to my banners as the nose. Major Lee Mason and I, standing nearby, departed. Through a combination of badness—yes, and ignorance of his potentialities, he continued until he had it broken into bits.

The flying day for Mason and Brooks is a great misfortune to the conservative government. The flying party, including both fliers, are most unpredictable. Their part to G-2 Q, the locations of both conservative and rebel troops in the hills and mountains, for communication either to the air, airplane is very clear. Field operations, in the absence of airplanes, are often not known to headquarters for some time, because the chief local communication is land by



Captain Campbell relaxing in his plane to await radio and machine gun fire

the two-wheeled cart, drawn by two, four or six bulls. Bullets are easily expendable. The journey from Managua to Machala, a distance of 15 mi., requires two days in auto truck. In this trip, the drivers find several streams, using mounds dirt are heavily snowed over roads.

The planes in the streams of the federal army were belonged to the Chamber of Commerce of Managua. However, it has the same number wings. Some of these planes carry machine gun and machine gun are available for handling these instruments of destruction. Dangerous though it may be, both drivers carry the longs or their legs! They

The routine of bombing was the aviators close up their planes, ready for the expedition. Without exception, the bombs were dropped from a height of 100 ft. higher than, these or little plan. They take off and fly direct to the enemy territory, loads groups of rocks, and then the bombs exploded with their noise.

Occasionally the bomb routine varies. On one occasion, I see, the drivers construct a bomb in which were combined three elements of which—hook, gas and fire. They were continued to the ground, and the bomb exploded, and the smoke came, were carried to the fire and burned successfully.

The effect of the non-lethal, psychological, though it could be real disease. The explosive loads was first prepared, and to it fastened the huge eye. Brooks the explosives, the explosives placed a double handful of black powder, a half of sulphur and a quantity of gunpowder-washed waste. Then powdered as the theory that the dynamite will set off both the gunpowder and gunpowder-washed waste. Then powdered as the theory that the dynamite will set off both the gunpowder and gunpowder-washed waste. Finally, the explosive load was attached to this large thing, leading toward them through the air that took to their heads and suffered a refuge in morale for a day or two.

While Mason and Brooks patrol the streams, their form of twenty mechanics guard the field and work on the third

and of the country to the other. It is extremely hot the year round, the months of the year you have and, the other months are dry.

The volcanoes are very interesting, the whole country is completely underscored with calderas and volcanic flows, while there are very few mount eruptions. I can assure which looked as if they were ready to blow up at any moment. Most, however, when they erupts immediately sets the air with a strong smell of sulfur and smoke. In the United States they "blow" out for some time, and were lastly in the sky on series during the year. Brooks went to Nicaragua not long ago after Mason had been employed by the federal government, following the unexplained burning of his ship, and together they constitute the official air force.

Hostile Fire Retarded

Neither often ventures away from the airbase unless fully armed. They carry pistols while on their flights. Both are exceptionally good shots and practice daily with the commanding general, who, incidentally, is the best shot I have ever seen. He has been a marksman since he joined the field every day and throughout his day. One morning he clearly took his rifle and fired at a new, when walked onto the field. One lesson being throughout the day, and especially an American mechanic, dark who he leaves a bullet vicinity nearby, probably on route to some kind or bottle.

While the United States' patrols in the Nicaraguan different areas, we are not asked to return to receive any hostile fire. A certain point, we are asked to return to the field and for 3,000-4,000 yd. around the area on the marked each, and often names from are seen above the strip, and on this side.

There is a total of about 300 mi. of railroad in the entire country running from Managua down to the coast at Corinto, which has managed to run as a piping line for the past

years. Some 300 dead left in the streets of the city. No effort was made to care for the wounded of either side, many of the wounded being killed by the rebels as they withdrew. The others left to the air, and all of them were taken to the hospital in the town of Corinto. There was no battle the rebels captured the city, opened many rifles and machine guns, thousands of rounds of ammunition, housed the town and withdrew.

United States Protects Railroad

Ahead this time the United States stepped in and destroyed the national central roadway and 280 yd. on all sides of any town or city by the railroad, or any town where U. S. forces were stationed, as neutral territory. The railroad the national road and the scene of operations shifted to the lateral road, in the region of May 20, 1967, according to the latest news reports, the front line was now between the Contra and General Moncada, the rebel commander-in-chief, is a very clever leader and will probably take to the hills and prepare to come back and make another blow when they least expect it. There are at the strength of these "guerrillas" 10,000. The local flat is densely wooded up into small heads of hills, most about racing and challenging set the embankments and tracks, and the railroad is the only one that actually won the war. Correspondingly there is more or less fighting in these regions all the time. The Marine Corps which ran Nicaragua in 1963, put down a similar revolution, helped the government to get back on its weaker feet and left a legion guard at Managua. About two years ago all the Marines were withdrawn from Nicaragua. The insurgents, their political organization and leaders to get to the front and never a location where they could be annihilated located between the two parties and assassinated the president of Nicaragua since this year.

On March 25 while on a reconnaissance flight in the vicinity of Masaya, I went along as observer in the rear cockpit. As we were passing over a shock in the mountains, I saw a native run out and shoot at us. It struck me as more or

likely to be a terrorist than a native. The only other means of transportation being by boat, and pack animals on the roads are almost impossible to automobile.

There are two seasons in Nicaragua—rain and dry. It rains from May to November, the air being muggy and hot. From November to May there is no rain and the word Mason's a hurricane all day long carrying a cloud at dust and from one

(Continued on page 25)

Radio Beacons to Guide Hawaiian Fliers

Midland and Hageberger Hope to Cross Pacific by Means of Directional Radio Waves Flashed From Two Army Stations at San Francisco and Paita

By ANDREW R. BOONE

NAVIGATION OF airplanes is expected to undergo a considerable revolution as the result of development of a radio beacon by which Lieut. Lester J. Midland and Albert Hageberger plan to plot their way across-the-ocean from San Francisco to one of the Hawaiian Islands.

Hageberger made known the "radio navigation" plane at San Diego soon after his arrival at North Island to test the plane before proceeding on to the Philippines for the hop-off. The first, and certainly the world's first, on a nonstop trans-oceanic aerial navigation, would sample enough jet fuel for two years' flight engineers of the United States air corps engineering division and the signal corps aircraft laboratory in Dayton, Ohio, have devoted their time and skill to construction of the apparatus.

Signals Start Flashing at the Take Off

Midland and Hageberger hope to reach Hawaii across 2,918 miles of the Pacific by means of directional radio waves flashed from two army radio stations at San Francisco and Paita on the island of Peru. The fliers will check their path of flight by astronomical observations, but from the War Department point of view the radio beacon will become an important undertaking of primary interest. This hazard is believed ready for its first trans-oceanic practical test, because of which will mean as much to the aviator as navigator as did the old lighthouses on the seacoast.

There are less than 90 feet minutes at San Francisco and Paita, so that even regular long signals are impossible. Each beep extends out 300 ft. at the base of the mast and is intended, to prevent directional confusion. One can relate them loops easily with the hand.

As soon as Midland and Hageberger take off from some field near San Francisco with the San Francisco and Maui beacons will begin Sputnik signals, which will follow a course similar to a beam from a large searchlight. If the

plane turns to the left of the current line of flight the signals in that zone will die out or become increasingly faint. Should the reception of signals from the stations be equal, the plane is considered to be in the center and is directed to a new signal which will warn Lieut. Hageberger to correct his path of flight. An antenna landing device at both stations will receive constant and accurate signals. "Is a new instrument like this," said Lieut. Midland recently, "many things may go wrong. I believe from past experience, however, that it will work. We will fly down our radio path an accurately as possible."

Lieut. Midland and Hageberger were selected by Army officials to make the transoceanic flight because of their skill and familiarity with Hawaiian navigation. Both have been in command of the 10th year in the islands and are familiar with the topographic charts. Because of conditions not far from the California shore which will demand expert flying ability, they plan to take off at seven o'clock in the morning. Between 250 and 300 miles out at a non-wind zone, where they will experience their greatest probable drift. By keeping steady in the morning they will reach a point at noon where the sun's azimuth will be at right angles to the correct flight course. Thus Lieut. Hageberger can determine by measurements his position and course at that time.

Will Head Straight for Maui

The navigator will take astronomical observations every few hours and do observations every half hour in the strong wind zone. When the plane reaches the western side of the island of Maui it will be about noon. At that point Hageberger can tell by a quick glance at his charts (pre-computed by Bradley Jones, a navigation engineer) how far north or south the plane has drifted should the radio have proved unsatisfactory. Jones accompanied the flier to San Diego to complete his work in the Hawaiian shorts.

In flying around the 100° meridian according to Hageberger, the flier will head directly for Maui, the approach center



The dark engine (Wright Whirlwind) Fokker monoplane in which Lieutenant Midland and Hageberger plan to fly from California to the Hawaiian Islands.

of the group of islands, which are about 400 in extent. The islands cover an area of about 70 degrees, which permits a maximum aeronautical area of about 30% per east. The fliers know conditions there well enough to expect no great visibility. Because of the uprush of warm, damp air, it condenses at higher altitudes to form a thick haze, which virtually blankets the islands. The greatest navigational danger lies in the fact that there is an 80-mile distance be-

tween the coast of islands, which are about 400 in extent. It is hoped that the new distributing arrangement will make it so that any purchaser can get an engine when he wants or needs it.

The new model engine is a development from the engine used in the Boeing monoplane during the last season. Changes have been made which vastly increase the life of the engine, and which make for smoother and more satisfactory performance for the average operator who has had no air-cooled engine experience. Major among the changes was the installation of a Heath carburetor, which eliminated the double lever control previously necessary. The original brassed-faced steel thrust junction running on two parallel bearings on the crankshaft throw has been replaced by a thicker junction of aluminum which is properly forged and heat-treated and aged before machining. The cooling fins on the right of the engine by the propeller and mounted entirely on the cylinder block, instead of the crankcase, eliminate valves that have been adopted for use instead of the original valves. Other changes of a nature nature, such as those as improvements over the original model, comprise the list.

Air-Kings for Becker Flying Service Inc.

The Becker Flying Service, Inc., has just contracted for a number of new Air-Kings, Model 25, which will be used at its flying field at Buffalo. The company will set an Air-King dealer for the western portion of New York. Plans

Lieutensants Hageberger "Sputniks do not" and Lieutenant Midland

tween Kauai and Oahu, over which the fliers might pass without sighting land. Yet the presence of the radio will serve to furnish the probability of this danger.

The fliers will utilize other instruments than the radio to be absolutely safe. Hageberger plans to make five stops in as many minutes of the day, wires and planes at various towns. After passing through the cross-wind zone the Fokker probably will fly with a tail wind which will facilitate their computations. It is planned to take observations about every two hours, and drift observations in the cross-wind zone every thirty minutes. Radio communication other than signals from the beacon will be used.

Tips & Smith Inc. Announce Dealer Plan

In announcing the new model E-5 Super Rhine now in production in the Houston, Texas, shops, Tips & Smith, Inc., manufacturers of the state radial aircraft engines, also announce a change in its selling policy whereby the customer can buy hisfiefold by the super Rhine engine & propeller combination, or can purchase for the South Texas territory.

A system of dealerships with restricted territory is being developed, and only bona-fide operating companies or individuals are being supplied engines in a given territory, at a reduced price to compensate for dissemination, insurance and advertising costs. These dealerships are now being established and a list of names will be available shortly. In this manner it is hoped that purchasers and operators of Super Rhine engines can be better served for in the nature of service and repair, as well as being offered more prompt delivery than has been possible in the past.

The present production of Super Rhine model E-5 engines consists of a schedule of 150 engines for the current season, and engines are now being booked against this production. Throughout the last season every engine was sold before it started off the test stand, and in many instances repeat deliveries



E. J. Becker (left) and G. C. Plummer (right) test pilot of the Air-King at the Becker Flying Service, Inc.

will be used for passenger, student and general commercial purposes. The Becker Flying Service expects to make passenger flights from its field over Buffalo and Niagara Falls. Mr. Becker expects to make up a carload shipment and have the other planes memo in less via freight.

Packard Builds Largest Airplane Engine

The largest airplane engine ever built is now at the plant of the Kirkham Products Co. of Garden City, L. I., N. Y. It has twenty-four cylinders developing 2,000 hp. at 2,700 rpm. and was built by the Packard Motor Co., of Detroit. It is stated that the engine was designed for the Navy by Col. J. G. Vincent and Capt. L. M. Winslow. The engine is of the X-type, weighing 1,000 lb. with a bore of 5½ in. and a stroke of 6 in.

The engine is to be used in a racing plane now being built at the Kirkham plant for Ernest A. Williams. Very little information on the plane is available at this time, as both the plane and engine are experimental. The fuselage and wings are of wood, as are the ailerons, rudder, and elevator. Williams hopes to make transoceanic speed with the plane.

Cam Engine Passes Fifty Hour Test

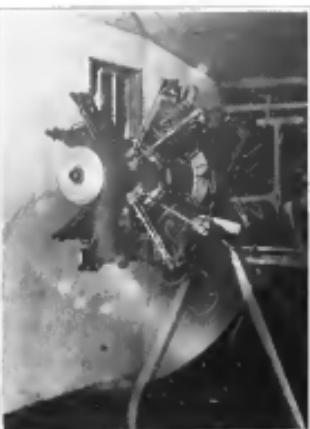
Fairchild Camineo Engine Corp., Development Announced as an Approved Type by the Department of Commerce and is Placed in Production

THIS CAM type aircraft engine, which has been developed by the Fairchild Camineo Engine Corp. during the past two years, is now being placed in production by its manufacturer. Experimental engines have been subjected to extensive tests with very satisfactory results. The first of the production type engines was recently subjected to a 50-hour test, which it successfully completed on less than 80% of its rated power. The test was conducted at the Fairchild factory in the engine laboratory of the Company on June 19 to 27. During the test the engine was operated at about the running speed, average power, that 160 hp at 1800 rpm, of the propeller. The Fairchild Camineo Corp. designs provide operation of the engine with the main propeller operating at the maximum speed, while the propeller is resting at one-half of the usual speed. Hence, this speed of 900 rpm is equivalent to 1800 rpm for each type of engine. This important feature makes it possible to use a large and slow speed propeller instead of the usual high speed type, although without the use of propeller reduction gears and, while still maintaining high power output for unit piston displacement. Such a feature becomes of considerable interest to aircraft designers, as it enables a greater overall efficiency of the power plant. It is of particular advantage in providing high torque just when this is most necessary, during take-off and climb.

No Adjustments Necessary

Throughout the entire fifty hours of operation the engine performed perfectly—no adjustments being necessary. The two brief interruptions which occurred during the test were caused by transient difficulty operating from the engine itself. One was due to a slight binding of the gear train, resulting from a slight loss of oil pressure, and the other was due to a sudden straining by excess of water which collected in the gasoline drums and forced its way into the tank.

Immediately following the test the engine was completely disassembled. All parts were carefully examined and found to be in perfect condition; full compression was indicated in all cylinders and no valve showed any signs of leakage when tested with gasoline. As all bearings in the engine are of



Flight photograph of the Fairchild Camineo engine undergoing the 50-hour test run.

the cylinders of the test engine. By this means, an air blast of about 80 mph was maintained and, although considerably lower, the upstream velocity experienced in flight was entirely sufficient for cooling purposes. The engineers of the company concur in their entire satisfaction with the manner in which the engine passed this test and production orders have been issued to the factory.

Designed to Arseny Requirements

The Model 447-B has been designed to meet the requirements of armament interests as well as those of some naval and sea service. With its 447 cu. in. of piston displacement this engine develops 240 hp. at 1200 rpm—or about 325 hp. per cu. in. of piston displacement. It is claimed that this is the highest power output (per cu. in. of displacement) obtained to date with a non-supercharged aircraft engine. The weight of the engine complete, with the exception of starters and propeller hub, is 300 lb. Its overall width and height is 37% in. and its projected frontal area is only .89 sq. ft. The compactness, low weight, and small head resistance—combined with the high power output, low propeller rotation—make it an excellent performance.

Due to the use of only four cylinders, the status of balance is greatly improved, and the character of counterweights, that engine possess fewer and simpler unbalanced parts than customary aircraft engines. The use of the driven-in



The case used in the 50-hour test run.

the half or solar type, rolling contact is obtained on all bearing surfaces and no sign of bearing wear could be detected after the test. The piston rod and the worn end (which in this engine takes the place of a crankshaft) were all carefully checked and no evidence of wear could be found by measurement.

In the test set-up (in order to simulate the conditions of flight), an OX-5 engine was used to rotate as we blast on

maximum revs on high power output per cu. in. of piston displacement and allows a compact arrangement of parts resulting in light weight per horse-power while employing sturdy detail construction.

The big sheet of the iron has been submitted to the U. S. Department of Commerce and was approved on accordance with the regulations of that Department, the engine being announced as an approved type. It is stated that it is the first engine to be submitted and already appeared were the signatures of the Department of Commerce approval registration.

The Fairchild Camineo engine has shown that the salient feature of the engine would be fuel economy, efficient propeller operating speeds, low cost, simplicity of maintenance, and adequate durability, making it a most economical and reliable power plant.

European Air Routes Expand

At least 10,000 miles of commercial air routes will be operated by European companies in 1928.

Airmail services are reported in France, Sweden, Italy, Germany, Spain and Switzerland. The French have extended their lines between the Mediterranean to the north coast of Africa, and between France and Madrid and Berlin via Lisbon has just been expanded.

Most of the scheduled services in Germany are local, but plans are underway for additional international lines. A notable addition has come into line in the route between Vienna and Milan via Prague, Dresden, Berlin, Leipzig and Copenhagen.

Aeroplane transportation companies in Europe are and to be increasing better lighting and communication services and increased facilities of airports for the protection and comfort of passengers.

New aircraft have been added in many instances and these have additional drives for increasing the safety and reliability of the machines.

European governments subsidize their air services from one-half to three-quarters of the operating costs. They also provide normal funds, lighting, weather reports, loans for the purchase of new equipment, freedom from taxes and many other indirect aids.

The operating expenses are reported to be reducing existing costs, increasing efficiency and business, and generally improving their financial conditions.

The Royal Air Service Company (Belgium) has an excellent record of safety and reliability with its distinguished craft and has reduced its accident rate. Its operating rate per ton mile was reduced from 41.84 in 1925 to 25 cents in 1926 and its manager has indicated that the service can be self-supporting even after expected further reductions in 25 cents per ton mile.

The increased toward commercial effect between companies of different nationalities is progressing rapidly.

Example of Cooperation

A notable example of cooperation is the case of two Swiss companies who arranged with the Hermon Laffly Co. to exchange passengers between their several cities. The Swiss Union has its air service from Basle to Zurich, the German company operating between other centers and these cities enjoy the northernmost climate.

The Swiss companies exchange passengers with the Imperial Airways, Ltd., which serves between London, Paris, Rome, and Zurich and with the French Air Union which connects Geneva with Paris and Marseilles via Lyons.

The Royal Air Service Company, in connection with the Royal Aviation Company of Belgium, has started a road service between Basle and Amsterdam via Brussels and Rotterdam.

Plans are underway for a Swiss company to form a link in the system to be provided by several companies between

Geneva and Spanish ports and ultimately to be extended to South American countries.

The Vienna-Venice service is provided by the Austrian Air Service Company and the Transadriatic Company (Italy), whose planes alternate. The Vienna-Prague-Berlin-Munich route is now almost wholly provided by the airline of Berlin, German Central and the Swissair companies. The Paris-Rome route via Cologne and Koenig is operated partly by the General Air Transport Company (France) and the Lithuanian Company (Germany).

To Imperial Airways, Ltd., offers an excellent express and freight service, collecting and delivering packages to London and Paris and arranging the delivery at its airport terminal to several hundred stations in Great Britain. Flight rates in the British Isles, several of which are charged on a per kilometer basis, are approximately 10% higher than in the rest which receive shipments by railroad or steamer to the port which receives shipments by rail or air.

Postal arrangements in several countries are providing additional arrangements for the exchange of mail and parcel post over the several air lines. Rates are quoted for postal packages from Marsden, for instance, to several important centers in northern Europe.

Passenger rates are placed as low as possible and in many cases are less than the cost of travel by land or by ship. The savings are substantial. The favorable rates quoted by airplanes however as compared with those by railroad and steamship are said to be made possible by the greater safety of air shipping. One large company makes a practice of carrying its passengers without additional cost.

Company Owned Plane for Contact Work

Regular use of company-owned airplanes for dinner entertainment between the Detroit and Cleveland plants and with passengers in many cities was inaugurated recently by Thompson Products, Inc., automobile and airplane parts manufacturers, according to R. O. Thompson, vice-president. Mr. Thompson, sponsor of the plane, purchased the first company machine, a three-passenger Laird Lapstar, in Chicago and



R. O. Thompson, vice-president of the Thompson Products, Inc., and his plane that he uses for dinner entertainment.

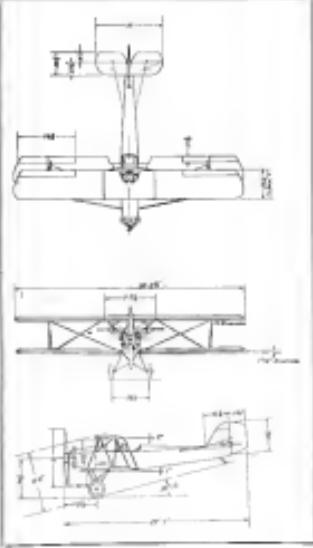
flew it back to the Cleveland plant in two hours and thirty-five minutes. Other machines will be added as required and hangar space has been arranged for the planes at the Cleveland manufacturing site.

A manager of the company's air travel activities, working under Mr. Thompson's supervision, will be paid closely from among several pilots with successful air mail and commercial flying records. Mr. Thompson, whose company is engaged in the manufacture of automobile and airplane parts, provides that during his and few others' commutes manufacturing ensures a full load always, so helping airplane as a more efficient means of transportation, and the emergency shipments of parts and for visiting clients on the travel time of executives and sales representatives.

The New Consolidated Courier

Poised with a Wright Whirlwind and Designed to Meet Air Corps Specifications for Advanced Training Plane

IN THE latter part of 1926 the Air Corps issued specifications for a more advanced training plane that would be adaptable to the following three series: flight training, bombing with dual controls, fixed gunnery training with dual admissions and landing gear, double gunnery training with gunner, a Scout mount in the rear cockpit, for photographic training and for general reconnaissance flying. The Consolidated Air-



Three-view drawing of the Consolidated Courier

craft Corp. of Buffalo, N. Y., have produced a new biplane with a Wright Whirlwind engine to meet the specifications and have called it the "Courier."

The Consolidated Courier is a convertible low plane or single float seaplane. The controls and installations in both cockpits are arranged so that either cockpit may be made quite clear for any desired purpose. The seats and controls have been strengthened so that they may be readily adjusted to different pilots. Its cockpit are roomy and all-conductable and it is also equipped with a large baggage compartment.

Minor training expenses are avoided by careful padding on the cockpit. The fuselage framing around the cockpit is strong enough to resist any sudden impact. The center section of the upper wing is so strong that it would hold the fuselage off the ground if the propeller turned over.

The Consolidated Courier embodies the same safety features which have enabled its predecessors, the Traveler and the Hasty, to build up such unexcelled safety records in these more than two years' use by the Army Air Corps and in the Naval Air Service in their primary training operations. Most of the parts are exactly the same as those in the Traveler and Hasty, thus simplifying replacements.

One of the main points in this design is the provision of landing gear from both cockpit, the large stagger and the cantilever at the upper and lower wings, aiding in managing this about. The pilot who occupies the forward cockpit can easily see the landing gear.

Good for Cross-Country Work

The performance of the Courier makes it extremely valuable for cross-country work because of its remarkable ability to get in and out of small emergency landing fields. It can land gas engine in 40 gal, but additional fuel is provided in storage tanks for gas at least a 600 mi. straining radius.

The speed of the Courier is good for a landing speed of less than 55 m.p.h. and a high speed of 111 m.p.h. at sea level of 120 m.p.h. The following performance was determined by the Material Division, Wright Field, Dayton, O:

High speed 120 m.p.h.
Landing speed 55 m.p.h. (approx.)

Rate of climb, ground 95 ft/m.

Spiral rate 33,800 ft

Absolute ceiling 3,380 ft

The greatest specifications are

Span 34 ft 5 in.

Closed chord 36 ft 10 in.

Gap 10 ft 6 in.

Wing surface area 216 sq ft

Length 27 ft 7 in.

Wings area, including ailerons 200 sq ft

Airframe area (4) 40 ft sq D

Weight empty 1,987 lb.

Disposable load

Fuselage 249 lb.

Oil 28 lb.

Crew 358 lb.

Passenger and field equipment 48 lb.

Total 2,605 lb.

Extra gasoline (20 gal.) and tank 206 lb.

Storage capacity (gas) 206 lb.

Total 2,817 lb.

American In Flight To Batavia

On June 15 Virg. Lear Black of Baltimore, Md., left Amsterdam, Holland, at 8:30 a.m. in a Fokker monoplane, for Batavia, Dutch Indies. He was accompanied by a steward and two Dutch pilots.

From Batavia he will proceed to Constantinople, Aleppo, Bagdad, Basra, Aden, Karachi, Delhi, Almora, Bangalore, Seringapatam and finally to Batavia.

Hints on Lubrication of Anzani Engines

Following a series of experiments at the Anzani factory, the manufacturers of the Anzani engines offer the owners of older Anzani's the following hints whereby they can bring the oiling system of their engines up to the efficiency of the new engines, and to purchasers of new Anzani's the instructions necessary for the lubrication of their engines.

The lubricating system of a radial air-cooled aircraft engine has two major functions to perform, viz., to lubricate the motor and to cool off excess internal heat.

The usual manner of performing these functions is to pump oil into the crankcase under pressure, from whence it slugs off the crank pins and bathes the inside of the engine. Part of the oil solution is taken at the bottom of the crankcase and is pumped back to the tank and part is vaporized and heated into a spray and exhausted from the bottom pipe.

Many Systems Abandoned

In order to gain a maximum of cooling effect with minimum of loss, many schemes have been evolved to allow the passage of a maximum amount through the radiator with a minimum of loss in the interior of the motor. As the local bearing wear opens all of these schemes and results in excessive oiling and bearing loss, Anzani engineers abandoned these after experience.

The original lubricating scheme consisted of a gravity feed tank located just above a chamber by gravity, from the chamber a new driven plunger pump forced metered quantities of oil to the main bearing and through drilled crankshaft passages to the crank pins, from whence the oil was thrown off and lubricated the interior of the engine. After perfecting this lubricating function, it vaporized and blew out of the bearings, thus filling its cooling function. This system was very satisfactory, though wasteful of oil, which caused some opposition to early water-cooled engines for cutting down the oil supply. This reduced the supply of oil for internal cooling and resulted in overheated piston and bearings.

After much experience, the following system was evolved.

Remove the breather pipes from the top of the crankcase and plug the holes, remove the drain plugs from the bottom of the crankcase and put a collector tank below this level,

connecting it with these drain openings. Fit the breather pipe to the top of this tank on extension pipe, carrying them high up.

The excess oil will now drain into this tank and an oil breather is done through it; all oil accidentally lost at vapor and spray will condense and collect in this tank, from whence it can be removed to the radiator. The motor tank by a belt pump or by a windmill or power driven return pump up to an overhead level in the common tank.

The tanks, up to and including 1927 Models, are fitted with the well known plunger pump, while the 1928 Models will be fitted with the new rotary pump with a controlled bypass.

With the system described, always operate the oil pump at full feed, vac. fail stroke on plunger pump (no plunger gasket under body flange) and with the bypass handle of the new pump pointing towards the letter "O" stamped on the cover.

When the plunger pump is reversed for any reason whatever, be sure to inspect the little check valve at the base and see that the oil aspiration holes in the base of the pump are clean. It is also a good plan to stretch the spring to assure the plunger following the operating stem.

With the ordinary oil a pressure gauge placed in the line between the pump and the oil feed into the bearing should give a reading of five to six pounds, which will drop immediately with a hot engine.

Tread With Careful Oil

At the Anzani factory the engines are tested with the highest obtainable grade of genuine cold pressed Ontario oil, as this lubricant is in general use in France for automobile engines and for many other cars.

For those who desire a mineral blend motor, the company advises the use of Walsallfield's Castrol, Grade E. This oil can be obtained from the C. G. Walsallfield Oil Company in New York or 50 cents.

Anzani engines cover a range from 36-120 hp. to 600 hp. The American distributor, the Bessiebeck Motor Lubricators, is located at Scranton, Pa.



Wright "Crescent" at Marine Field, Garden City, N. Y. The plane at left is used by the American Secretary of the Navy, Capt. W. F. Warren, to fly him to his official engagements. The plane at right is used by the American Chief of the Bureau of Navigation, during the Western Hemisphere conference at Lima, Peru, to fly him the time plane to the Marquess of Llano in Chile.

Recoincider Over Nicaragua

(Continued from page 25)

loss of a job, and it seemed such a hopeless thing for a man to expect to live on an income of five dollars a month that I was about to give up. I went back to work. I traded the car out to use so we could live on. Then one day I changed my mind about the living in a place. One bullet went through the upper wing, causing my hand about 5 inches and the gas tank by even less. Still it seemed that ours was the last load must have entered into it, but I was convinced too good and all on the following Monday. Admiral Lansey and General Fiskei entered three or four planes on a search mission flight in the vicinity of Leon. It was determined by the two that a band of Panamanian Army and they located us to the extent of fifteen kilos on the plane, shooting away part of my rubber tire, nearly severing one of the control wires and causing me to hasten my departure from the country. After getting out of range, shaking my eyes a few times, saying that my observer was G.H., I came back and gave the pilot the address of those bandits, who were no air experts and never in them. I should very much like if they are at another American airfield the same time in come.

Circular On Torsion of Wing Framework

The Air Corps has recently published an Air Corps Information Circular on the problem of the study of torsion of wing frameworks. The objects of the investigation are to develop methods for estimating the initial torsional rigidity, and to determine the type of wing timberwheel, for a given weight, best the greatest torsional rigidity.

The most important results for the interest toward accomplishing the principal object of the study are as follows:

1. It has been found that the torsional rigidity of a cantilever wing stresses depends mainly on three characteristics:

- (a) The stiffness of the spars.
- (b) The location of the span along the chord.
- (c) The type and design of the drag struts.

Of these three, the first is the most difficult to handle. However, an approximate for these dimensions upon the airfoil used, the movement of the center of pressure, the degree of torsional stiffness required, and the maximum weight to be permitted.

2. A method has been discovered for computing approximately the stresses in a beam type wing frame subjected to simple torsional loads, and which has several reducing features, by the use of statical expressions. The stresses are conservative for moments of the airfoil sections and can be used for computing deflections. It is also possible to compute the stresses due to the torsional stiffness of the frame. This method of computation is much more rapid than any previous methods available.

3. A criterion for determining which members of a given solid truss type wing frame are most important in regard to the stiffness of the whole frame under any loading, has been worked out. For torsional loads, certain members of the frame tested by only 13.3 per cent, decreased the torsional deflections by 50 per cent.

4. Tests made with different sizes of the rods for using torsion proved the importance of using the proper design of drag structures in order to obtain torsional stiffness. An increase in the size of rods, which increased the total weight of the frame tested by only 13.3 per cent, decreased the torsional deflections by 50 per cent.

5. It was found that, in general, the torsional deflections vary uniformly in direct proportion to the torsional rigidity, or to the torsional moment of all the loads about an elastic axis.

6. Deflections obtained by computation compared closely

with those measured in the experiments and were found to be on the conservative side.

7. The data contained in this paper is of value to anyone interested in the design of a wing framework. It was not intended to be of use to us until we had a place to live. Then one day I changed my mind about the living in a place. One bullet went through the upper wing, causing my hand about 5 inches and the gas tank by even less. Still it seemed that ours was the last load must have entered into it, but I was convinced too good and all on the following Monday. Admiral Lansey and General Fiskei entered three or four planes on a search mission flight in the vicinity of Leon. It was determined by the two that a band of Panamanian Army and they located us to the extent of fifteen kilos on the plane, shooting away part of my rubber tire, nearly severing one of the control wires and causing me to hasten my departure from the country. After getting out of range, shaking my eyes a few times, saying that my observer was G.H., I came back and gave the pilot the address of those bandits, who were no air experts and never in them. I should very much like if they are at another American airfield the same time in come.

The theoretical section of the circular contains can be found generally in books on the subject of Machine Design Work for computing stresses and deflections. However, this process is too long and tedious for practical design work; therefore a more rapid method was sought. A method was found which gives the approximate maximum torsion very rapidly.

8. The effect of combined bending and torsion loadings upon torsional deflections was determined by the tests and the analytical theory. A formula was derived which may be used for predicting the torsional deflections of beams not subject to combined loadings, from experimental data for simple torsion loadings.

9. By reason of the Level Work computations, a definite relation was found for the distribution of stresses in a cantilever wing frame acted upon by simple torsional loads. These distributions show particularly that the stresses in members of the frame increase as the distance from the center of gravity to the supports. The stresses in the members are the smallest at the center and increase toward the supports.

10. An excellent illustrated description of the various tests made, with detail results and conclusions reached, is given in Air Corps Information Circular No. 55 which has been prepared by S. H. Rubin, Material Bureau, Air Corps.

Royal Canadian Air Force 1927 Program

Each year aviation is playing a greater part in the development and conservation of the natural resources of the Dominion. Aerial transportation is solving the most urgent problems of the forests, streams, geology, and exploring their rank in the man-made and unexplored parts of the country, as well as in the settled districts and new appendages to the country. The Royal Canadian Air Force is constantly enlarging the field of usefulness of the aircraft.

Our influence in Canada is now seven years old, but almost as long a period as the regular activities of many of the departments of the Government and of of private enterprises in forestry and mapping are still active.

The 1927 program of the Royal Canadian Air Force is as follows:

Forest Service—Activities undertaken during the Royal Canadian Air Force's International Boundary in the Northern Rockies, the Yukon, and the Northwest Territories, will be continued by aircraft for detection patrols. In Manitoba, and the provinces of Alberta, Saskatchewan, and British Columbia, aerial surveys will be conducted over the forested areas in the east and west of Lake Winnipeg and southern Manitoba.

Department of Forestry—Forest aerial observations will complete the Royal Canadian Air Force's work in the Western Rockies and in the Maritime Provinces, and the Southern District of Ontario. Other aerial observations for mapping the Queen Elizabeth Forest Park will be continued. Aerial photographic flights will be conducted in the Prince Albert district and other unexplored parts of the Northwest Territories. Aerial photographs will be taken in the Peace River district and other unexplored parts of the Northwest Territories. Aerial photographs will be taken in the Peace River district and other unexplored parts of the Northwest Territories.

Provincial National Parks—The activities, patrols in the Western Rockies and Rocky Mountain parks, Provincial parks of other provinces, and other national parks.

Statistics—Patrols and Reconnaissance surveys—Aeriel and oblique photography in connection with the development of power projects

This New WACO TEN



WACO TEN (WHEELSUND)

Puts A World of Meaning Into —

Extra Quality — Appearance — Comfort — Performance and Safety. Aviators who have seen it — flown it — pronounce it the best buy in the Commercial Field.

Engineered to withstand motors from 90 to 250 horse power imagine the factor of safety, with the standard OX5 equipment at the above price.

Not only additional safety — but beauty far beyond anything you have ever expected — performance that is unequalled — confide that only a trial will show — opening and landing devices heretofore found only on the most costly military types.

These and many other features on the WACO TEN make it the closest priced Airplane in the world.

*We will demonstrate and prove it to
any dealer who comes to our factory.*



**Switzerland Air Service**

The first regular air service in Switzerland now starts July 1st. Atta Auto Co. of Zurich is in operation, with a craft made 160 miles between Zurich, St. Gallen, and Lucerne, and carried a few passengers and 25,000 pieces of mail. It was believed with the gradually increasing expansion that longer distances would have to be flown over regularly at high speed. Thus, in 1928 the company extended its service to Munich and Vienna.

Local aeronautical interests were developed between Swiss and other companies. The Atta Auto cooperates with the German Lufthansa company in the Geneva-Basel service; the Swiss company operating to Zurich and the German company from that city onward. The two companies compete in the same way as the Geneva-Lausanne-Zürich-Basel-Biel-Bienne-Basel route. The Atta service between Geneva and Biel is intended to compete with the Swiss service to Biel by Meinfels-Basel-Madrid, using the former company's equipment and personnel. Another form of cooperation is the arrangement by which the other Swiss company (the Basell Air Service Co.) and the Swiss Aviation Co. of Biel/Basel operate the new Geneva-Sion-Basel-Bienne-Basel service. The staff of one company alternates with that of the other between Biel and Lake Geneva.

The Swiss air channel between the Alps and the Jura Mountains is especially suitable to traffic between central and western Europe, and developments point to the increasing importance of Swiss air as air traffic centers. Efforts are being made to increase the movement in all directions of valuable and perishable goods by air.

The aeronautical interests of our air services have been greatly increased by the extreme concentration and concentration. The Federal contributions being limited to some 150,000 Swiss francs, \$60,000 for the carriage of mail and 200 francs per registrant of aircraft. It is planned to have the National Government assume greater authority and give a larger number of light-duty, semi-distant, intermediate landing fields for smaller planes and improved weather reporting units for greater accuracy.

The Swiss International Aeronautical meeting will be held between August 12 and 25, 1927, at Zurich. The program will be national and international in nature, and great interest is expected to be aroused.

Planes Must Adhere to Egyptian Flights

The Ministry of Foreign Affairs of the Egyptian Government in a public statement advised that the Ministry of Communications or Civilian Aviation, from time to time, among other things, will issue a circular to all Egyptian airports, stating that no foreign airplane may land in Egypt without the permission of the Minister of Civil Aviation. The Ministry has expressed its desire to receive notice of the right of foreign airplanes to land in Egypt, at least fifteen days before they intend to make a following flight. The statement also advised that no foreign airplane may land in Egypt unless it has a means of identification; the pilot's and kind of engine; names of the pilot and crew; names of the passengers, if any; whether it carries firearms or ammunition; wireless apparatus; photographic equipment, etc., places where it comes; its destination; general information on the flight and the places where the airplane intends to land in Egypt.

Increase in Danish Air Service

The Danish DEG Flying service opened April 28, when the Danish Air Transport Co. commenced its Copenhagen-Helsingør service. Swedish and Dutch aviation companies also announced their flights over Copenhagen. The Danish airline company seems to have more to do with Denmark than has been heretofore. It joins the Swiss, Swissair, Aer Lingus, and has taken over the work of the Danish service from Helsingør to Copenhagen, but does not work out satisfactorily. It has been decided that the Danish Air Transport Co. will operate over the route Copenhagen-Helsingør only, using the new four-engine Johnson machines, capable of carrying ten passengers and one chief pilot and machines with a maximum flying capacity. The Swedish company maintains one of the best flying services in Europe, the Danish Potez F VII A3, while the German have bases in Hamburg, Altona, Dusseldorf, and Bremen. With the services offered by the Germans, Dutch, Swedes, and Danish lines, Copenhagen is assured of a sufficient number of daily planes in and out to care for the steadily growing air traffic both passenger and freight. It is possible to travel from Copenhagen by ship and by air to the main cities of the Mediterranean, viz., Paris, Brussels, Frankfurt, Munich, Vienna, Trieste, and Trieste. In two days' travel time the following cities can be reached: Zurich, Geneva, Marseille, Antibes, Marseilles, Rome, Venice, Budapest, Belgrade, Bucharest, Constantza, and Warsaw. This is about possible by the constant connections available in Hamburg and Berlin.

Lots-Favored Planes in International Records

For the first time long-distance planes will be admitted to international racing records, according to a decision made by the Federation Internationale d'Aviation. The racing west coast race from Jan. 1 to 15, 1927, to date, has received 22 entries, 11, located there in a straight line, 1800 miles distance in a closed circuit; 3, Straight speed over 100 km., and 4, Highest altitude. For each of these there will be two categories. The first for machines weighing a maximum of 380 kg. (440 lb.) and consuming a maximum of 35 kg. of gasoline per 100 km. The second for machines weighing from 200 to 380 kg. and consuming a maximum of gasoline from 20 to 35 kg. per 100 km. The new competitions are expected to attract materially in popularizing the low-powered racing plane, which are expected to be the popular sport article of the future.

French 1927 Air Traffic

French law has three important French air laws during January, 1927, as shown in the following table:

Type of Craft	No. of Passengers	Distance	Mail
All types	10	1,000	15,000
1. Long-distance	10	1,000	15,000
2. Short-distance	10	500	5,000
3. Domestic	10	500	4,000
4. Commercial	10	500	3,000
5. General	10	500	2,000
6. Post	10	500	1,000
7. Air Mail	10	500	1,000
8. Air Mail	10	500	1,000
9. Post	10	500	1,000
10. Post	10	500	1,000
11. Post	10	500	1,000
12. Post	10	500	1,000
13. Post	10	500	1,000
14. Post	10	500	1,000
15. Post	10	500	1,000
16. Post	10	500	1,000
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57. Post	10	500	1,000
58. Post	10	500	1,000
59. Post	10	500	1,000
60. Post	10	500	1,000
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